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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/672,237

09/27/2000

William Robert Caid

5382

7863

22862

7590

10/13/2006

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EXAMINER

HIRL, JOSEPH P

ART UNIT

PAPER NUMBER

2129

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/672,237	Applicant(s) CAID ET AL.	
	Examiner Joseph P. Hirl	Art Unit 2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/17/6</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered August 17, 2006 for the patent application 09/672,237 filed on September 27, 2000.
2. All prior office actions are fully incorporated into this Final Office Action by reference.

Status of Claims

3. Claims 1-35 are pending.

Information Disclosure Statement

4. The information disclosure statement filed August 17, 2006 is defective. The listing of USPN 4,730,529 was not invented by Gallant.
5. The information disclosure statement filed August 17, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Only a small portion of the listed non-patent documents were provided at the initial submission on October 1, 2001.

The IDS has been placed in the application file, but only part of the information referred to therein has been considered. See the enclosed IDS for details.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-35 are rejected under 35 U.S.C. § 101 for nonstatutory subject

matter. The computer system must set forth a practical application of § 101 judicial

exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-

77. The invention is ineligible because it has not been limited to a substantial practical application.

In determining whether the claim is for a “practical application,” the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather that the final result achieved by the claimed invention is useful, tangible and concrete. If the claim is directed to a practical application of the § 101 judicial exceptions producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S. C. § 101.

The invention must be for a practical application and either:

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- 1). specify transforming (physical thing – article) or
- 2). have the Final Result (not the steps) achieve or produce a
useful (specific, substantial and credible),
concrete (substantially repeatable / non unpredictable), and
tangible (real world / non abstract) result

(tangibility is the opposite of abstractness).

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

Using a vector or dictionary to retrieve information from a database is a preemption of the idea of providing information. The courts have also held that a claim may not preempt ideas, laws of nature or natural phenomena. The concern over preemption was expressed as early as 1852. See Le Roy v. Tatham, 55 U.S. (14 How.) 156, 175 (1852) (“A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”); Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 132, 76 USPQ 280, 282 (1948) (combination of six species of bacteria held to be nonstatutory subject matter). Accordingly, one may not patent every “substantial practical application” of an idea, law of nature or natural phenomena because such a patent “in practical effect be a patent on the [idea, law of nature or natural phenomena] itself.” Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

8. Claims 1-17 and 27-33 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

Claim 1 @ step one, states:

assigning a context vector to each of a plurality of information items

Claim 1 @ step two, states:

initializing the context vectors such that the context vectors are substantially orthogonal to each other in a vector space

Specification @ page 3, line 23 through page 4, line 1 states:

Thus, two information items having similar meaning or content have similarly oriented context vectors, while items having dissimilar meaning or content have orthogonal context vectors.

Claim 1 @ step three, states:

determining proximal co-occurrences of the information items

Conclusion: since Claim 1 @ step 2 eliminated information content with substantially orthogonal vectors, step three will always result in no proximal co-occurrences or the independent and related dependent claims will never convey any utility.

In a similar manner, Claims 27-33 are defective and rejected.

9. Claims 23-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims are not repeatable (concrete) since they are predicated on human interpretation. The issue for claims 23, 25 and 26 is not that a human per se is involved but that the involvement of the human is done in

such a manner that the result will vary from human to human and therefore the result is not repeatable. Concerning claim 24, human is not defined in the specification and can be interpreted to be that of an early form of human species where words may not have existed and therefore the method of claim 23 simply would not be functional. Applicant is reminded that the Examiner has full latitude (obligation) to interpret each claim in the broadest reasonable sense.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-17 and 27-33 are rejected under 35 USC 112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a 101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed how to practice the undisclosed practical application. This is how the MPEP puts it:

("The how to use prong of section 112 **incorporates as a matter of law** the requirement of 35U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. 101, then the application also fails as a matter of law to enable one of ordinary skill in the art to use the invention under 35 U.S.C. § 112."); In re Kirk, '376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention.**"). See, MPEP 21107.01 (IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-17 and 27-33 are rejected on this basis.

Response to Arguments

11. The rejections to claim 18 and 21 under 35 USC 112, second paragraph, regarding "D" and "unique association", respectively, are withdrawn.

12. Applicant's arguments filed on August 17, 2006 related to Claims 1-35 have been fully considered but are not persuasive.

In reference to Applicant's argument:

a) Claims 1-35 were rejected because the claimed invention is directed to non statutory subject matter.

Applicant has amended the independent Claims to clarify that the invention is directed to a system and method for use in the storage and retrieval of media in a database, which is statutory subject matter. Support can be found at least in the preambles of certain of the Claims and as follows:

(On page 3, lines 1518) It would be desirable to reliably translate image data into representations that would enable a computer to assess the relative proximity of meaning among images in a database.

It would be desirable to have a computing system that can derive accurate, efficient, and manageable representations of images for later recall, retrieval, and association.

(On page 3, lines 20-21) The present invention is directed to a system and method for generating context vectors for use in a document storage and retrieval system.

(On page 30, line 19 through page 31, line 7, emphasis added) We assume the existence of a large data set (text, imagery, sound, video, etc.). By large it is meant that if the statistics of the structures we will study are determined using a (randomly chosen) sizable subset of the database that these statistics will not, with very high probability, change significantly if re-measured on the whole data set. We assume that our data set is densely endowed with what we will call elements, each of which belongs to one of N classes. For example, in text, the elements are words that belong to a designated lexicon (other words are ignored). Each lexicon word in the database belongs to one of N classes (stems). In imagery, the elements might be the objects designated by an automated attentional focusing system. These elements would each be assigned to a single class (where the classes are self-defined as distinct "clusters" of range/azimuth/elevation/background--insensitive feature vectors). For convenience, we will assume that each element A in the database is numbered with a unique integer index i. We will refer to the ith element of the database as A_i. The number of the class to which A_i belongs will be denoted by c_i, where 1 ≤ c_i ≤ N. The set of indices of all elements belonging to class K, 1 ≤ K ≤ N, will be denoted by S_K. Each time an element appears in the database other elements typically appear "near" it.

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Also, according to MPEP 2106,11,(A):

A A. Identify and Understand Any Practical Application Asserted for the ' Invention

The claimed invention as a whole must accomplish a practical application: That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02.

Clearly, the invention as a whole provides for a computer system and method that can derive accurate, efficient, and manageable representations of images and documents for later recall, retrieval, and association in a database. Applicant asserts that approaches for storing and retrieving documents and images in and from a database are tangible results and are not abstract results.

Examiner's response:

¶ 16. applies. The claims and only the claims form the metes and bounds of the invention. Limitations appearing in the specification but not recited in the claim are not read into the claim. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. See ¶ 6. related to the current issue of preemption.

In reference to Applicant's argument:

(b) Claims 1-17 and Claims 27-33 were rejected because the claimed invention lacks patentable utility. Specifically, the Examiner concluded that since Claim 1 @ step 2 eliminated information content with substantially orthogonal vectors, step three will always result in no proximal co-occurrences or the independent and related dependent claims will never convey any utility and asserted that Claims 27-33 are similarly rejected.

Applicant respectfully traverses.

The patent application as a whole clearly teaches training which includes initializing a given set of context vectors and then adjusting such initialized context vectors based on determined proximal co-occurrences of the information items. Support can be found at least in the discussion of Figure 3 and the corresponding text in the Specification as follows:

(On page 5, line 3 through 24, emphasis added) Context vectors are developed for individual words or terms based on proximity to other words. This learning technique is performed on a training set of documents. Referring now to FIG. 113, there is shown a block diagram of the training system. A training text 101, stop list 103, and phrase list 104 are provided to a preprocessor 102. Training text 101 includes a set of documents for training. Stop list 103 includes a list of words that are deemed uninteresting and are not to be considered in training (e.g., prepositions and common words). Phrase list 104 includes a list of multiple-word phrases that are to be treated as a single word for training purposes (e.g., "world series", "golden parachute", "best man"). Referring now also to FIG. 3, there is shown a flowchart of the training

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process. The system starts by preprocessing the documents in the training set. Preprocessing consist of several steps, including: 1) removing stop-listed words from the set of training words; 2) consulting phrase list 104 to locate and mark multiple-word phrases that are to be treated as a single word; and 3) reducing words to "stems" in order to increase the effectiveness of the training process-thus, "investments", "investor", and "investing". share the stem "invest" and may be treated alike. The set of word stems generated by preprocessor 102 is fed to learning system 105 which generates a set of stem context vectors 106 according to the method shown in FIG. 3. Each context vector consists of a fixed number of components (200 or more in the preferred embodiment).

Learning system 105 generates stem context vectors as follows. First, initial conditions are assigned 303. In the preferred embodiment, initial conditions are assigned by generating a random context vector for each stem, consisting of components selected by zero-mean, unit-variance Gaussian random number generation. Since the system uses dot products as the measure of relationship strength, mutual orthogonality is a desirable initial condition. This is due to the fact that near-orthogonal vectors will have dot products close to zero. This near-zero dot product corresponds to a weak initial relationship. Assigning a random context vector provides an initial condition that approximates mutual orthogonality. As will be recognized by those skilled in the art, other techniques of assigning initial conditions can be employed.

The system then starts with the first document 304 and proceeds through every document in the training corpus. For each document, it starts at the first word stem 305 and passes through the document, targeting each word stem, one by one. As each stem is targeted, the system applies 306 a learning law to the target.

The method of Claim 1 clearly initializing the context vectors and then determining proximal co-occurrences of the information items. Nowhere does Claim I recite how determining proximal co-occurrences of the information items is accomplished. The excerpt hereinabove puts forth an example of an embodiment of Claim 1.

Further,- according to MPEP 2173.04 Breadth Is Not Indefiniteness:

Breadth of a claim is not to be equated with indefiniteness. In re Miller, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112, second paragraph.

Undue breadth of the claim may be addressed under different statutory provisions, depending on the reasons for concluding that the claim is too broad. If the claim is too broad because it does not set forth that which applicants regard as their invention as evidenced by statements outside of the application as filed, a rejection under 35 U.S.C. 112, second paragraph, would be appropriate. If the claim is too broad because it is not supported by the original description or by an enabling disclosure, a rejection under 35 U.S.C. 112, first paragraph, would be appropriate. If the claim is too broad because it reads on the prior art, a rejection under either 35 U.S.C. 102 or 103 would be appropriate.

Applicant has shown that the Specification supports Claim 1.

Examiner's response:

¶ 16. applies. The claims and only the claims form the metes and bounds of the invention. Limitations appearing in the specification but not recited in the claim are not read into the claim. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Rejections remain.

In reference to Applicant's argument:

Regarding claims 34 and 35, applicant points out to the Examiner another embodiment on page 23, lines 6 through . page 24, line 2 and tile Summary Vector Indexing section beginning on page 81. Applicant is of the opinion that the Specification supports the Claims and as such, the rejection is improper.

Examiner's response:

¶ 16. applies. From applicant's remarks, one of ordinary skill in the art would not know which index retrieval system is claimed. 35 USC 112, second paragraph, rejection remains.

Examination Considerations

13.. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the

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art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

14. Examiner's Notes are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

15. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be obvious to one of ordinary skill in the art, establishing thereby an inherent prima facie statement.

16. Examiner's Opinion: ¶¶ 13. – 15. apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Claims 1-35 are rejected.

Correspondence Information

19. Any inquiry concerning this information or related to the subject disclosure should be directed to the Primary Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David R. Vincent can be reached at (571) 272-3080.

Any response to this office action should be mailed to:

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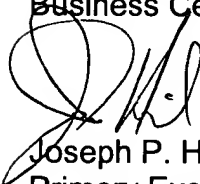
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Joseph P. Hirl
Primary Examiner
October 10, 2006